

BLUE

Work Order ID 67235



Page 1

Monday, March 14, 2011 9:44:34 AM

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: CL

Date: 11/03/14

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work-Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Draw Nbr

Revision Nbr

D206-667-143

11.03.14

C

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-103 CHG004

8x10x100

110

0.00



Pick Kit

Packaging

Packaging

Memo

0.00

Packaging

120

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-143 using CNC bender program

DP

11-3-24

DP

11-3-24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 67235**

Page 2

Monday, March 14, 2011 9:44:34 AM

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130

QC15- Crosstube Dimensional Check

0.00

8 uls 125

①



QC

Memo

0.00

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**Work Order ID 67235**

Monday, March 14, 2011 9:44:34 AM



Page 3

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Fwd, Blue

Stop



Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

140

0.00



Crosstubes

Crosstubes

**Memo**

0.00

Crosstubes

1-Drill holes &amp; ream using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-143. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 &amp; DT8542 as per Dwg D206-667-143. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-143. Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint.

9-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143 Inside of Cuff(Donot engrave on outside of tube)

10-Deburr &amp; Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143

PT 11-03-25  
SAD

DP

11-3-25

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 67235**

Page 4

Monday, March 14, 2011 9:44:34 AM

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

SAD 11-03-25



Hand Finishing Crosstubes

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

8 u 03/31

Quality Control

170

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

8 u 03/31

Quality Control

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**Work Order ID 67235**

Monday, March 14, 2011 9:44:34 AM



Page 5

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

180

Outsource process - NDT per QSI038 4.1

0.00



Outsource2

Memo

0.00

Outsource process - NDT

CROSSTUBES

RIO: 13734

PO/13743

CL 11/03/29 (1)  
PD 11-03-30 Pto →  
C

190

Packaging

0.00



Packaging

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

CL 11/03/29 (1)  
CL 11/03/31 (1)

200

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

M 11 04 04 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D206-667-103BL PAR #: N/A Fault Category: X-fuelers NCR: Yes No DQA: 1A Date: 11.09.21  
 Resolution: rework Disposition: rework QA: N/C Closed: OK Date: 11/04/25

NCR: 67235		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
u103/29	#180	Found many marks at NDT testing R.C. process	CP 11.03.29 OS/04	→ to many marks to grind if so reground entire tube + Re Align as per QST005	SAD <del>OS</del> 11.03.30	S u103/31	CP 11.03.29 OS/04	S u103/29
			CP 11.03.29	Re NDT tube P10 + 13734 Re receive tube in to shop + attach copy of results	<del>11.03.30</del> 11/13/31	S u103/31 S u103/31	CP 11.03.29	S 11/03/29

NOTE: Date & initial all entries

**Work Order ID 67235**

Page 6

Monday, March 14, 2011 9:44:34 AM

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

205

0.00



SprayPaint

Memo

0.00

Spray Painting

Spray Painting:  
prime grey B: 115967  
spray paint delfleet blue B: 115985  
clear delfleet B: 117113

m 11 04 04 ①

220

0.00



QC

QC14- Inspect Spray Paint

Memo

0.00

Quality Control

Wrap in plastic bag to protect from scratches

21 11-04-05

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 67235**

Monday, March 14, 2011 9:44:34 AM



Page 7

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

230

0.00



Crosstubes

Crosstubes

Memo

0.00

1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (2) Aft holes should be facing up.  
A/R Magnobond 6398 : 116677 Exp: 08/2011

2-Install supports and clamps as per Dwg D206-667-143. Torque clamps to 80-100 in lb

3-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron paint.

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Subtotal

②

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 67235**

Monday, March 14, 2011 9:44:34 AM



Page 8

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

11/4/85

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

Subtotal



270

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D206-667-103

Location:

PPP Rev: D

11/4/85

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



**Work Order ID 67235**

Monday, March 14, 2011 9:44:34 AM



Page 9

Item ID: D206-667-103BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 3/25/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

280

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/4/11 JF

MF  
11-04-11

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Monday, March 14, 2011 9:44:29 AM

Page 1

Work Order ID: 67235

Parent Item: D206-667-103BL

Parent Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011

Required Date: 3/25/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IIP RevA: new issue DD .09.11.23 verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D206-667-103TRN Manufactured No

110 Each 4.0000

1

1



Crosstube Turning DetailL

Location Loc Qty

LG003 *B67385* 4  
64948 1  
64949 1  
66441 1  
66443 1

Loc Code

*①*

*DP*

*11-3-24*

D2873-043 Manufactured No

230 Each 38.0000

2

2



Nut Plate Assembly

Location Loc Qty

LG 36  
65375 16  
66898 20  
ST 2  
60981 2

Loc Code

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

D2873-045 Manufactured No

230 Each 36.0000

2

2



Nut Plate Assembly

Location Loc Qty

LG 36  
60982 4  
63498 1  
65132 11  
65992 20

Loc Code

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*11-04-06*

*11-04-06*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Monday, March 14, 2011 9:44:29 AM

Work Order ID: 67235

Parent Item: D206-667-103BL

Parent Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011

Required Date: 3/25/2011

Start Qty: 1.00

Required Qty: 1.00

D2891-1 Manufactured No

230 Each

35.0000

2

2



2.25 Support

*blue*



*ml 11.04.05*

Location

Loc Qty

Loc Code

LG

30

53773

20

62595

10

LG051

5

50952

5

D3595-063-395 Manufactured No

230 Each

107.0000

4

4



RUBBER CUSHION



*ml 11.04.05*

Location

Loc Qty

Loc Code

FP

10

44667

10

LG

97

63368

37

65361

60

cut (4)0.063" X 3.95"

MS20601-AD4W8 Purchased No

230 Each

282.0000

14

14



RIVET



*ml 11.04.06*

Location

Loc Qty

Loc Code

LG

100

117106

100

LG051

78

116119

78

ST322

104

112203

104

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Monday, March 14, 2011 9:44:30 AM

Work Order ID: 67235

Parent Item: D206-667-103BL

Parent Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011

Required Date: 3/25/2011

Start Qty: 1.00

Required Qty: 1.00

MS21920-20

Purchased

No

230

Each

53.0000



Clamp (per MIL-DTL-8783C)



11-04-05

Location

Loc Qty

Loc Code

LG

3

112624

2

114687

1

LG050

50

116799

50

ANS-30A

Purchased

No

250

Each

72.0000



BOLT



4

Location

Loc Qty

Loc Code

ST339

72

114941

22

116003

50

ANS-32A

Purchased

No

250

Each

131.0000



Bolt



4

Location

Loc Qty

Loc Code

ST340

131

115016

21

115108

50

115589

60

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Picklist Print

Monday, March 14, 2011 9:44:30 AM

Work Order ID: 67235

Parent Item: D206-667-103BL

Parent Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011

Required Date: 3/25/2011

Start Qty: 1.00

Required Qty: 1.00

AN5-7A

Purchased

No

250

Each

208.0000

10

10



Bolt

Location

Loc Qty

Loc Code

ST337

208

113149

100

115936

8

116516

100

AN960JD516

NAS1149D0563J

Purchased

No

250

Each

34.0000

18

18



Washer

Location

Loc Qty

Loc Code

ST298

34

103694

18

107534

12

109287

4

AN970-4

Purchased

No

250

Each

118.0000

12

12



Washer

Location

Loc Qty

Loc Code

ST344

18

115936

18

ST349

100

116900

100

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Page 5

Monday, March 14, 2011 9:44:31 AM

Work Order ID: 67235



Parent Item: D206-667-103BL



Parent Item Name: Crosstube Fwd, Blue

Start Date: 3/14/2011

Required Date: 3/25/2011

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

250

Each

966.0000



4 4

11/4/82

Nut

Location

Loc Qty

Loc Code

ST300

966

114813

26

115594

244

116105

496

116548

200

4

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

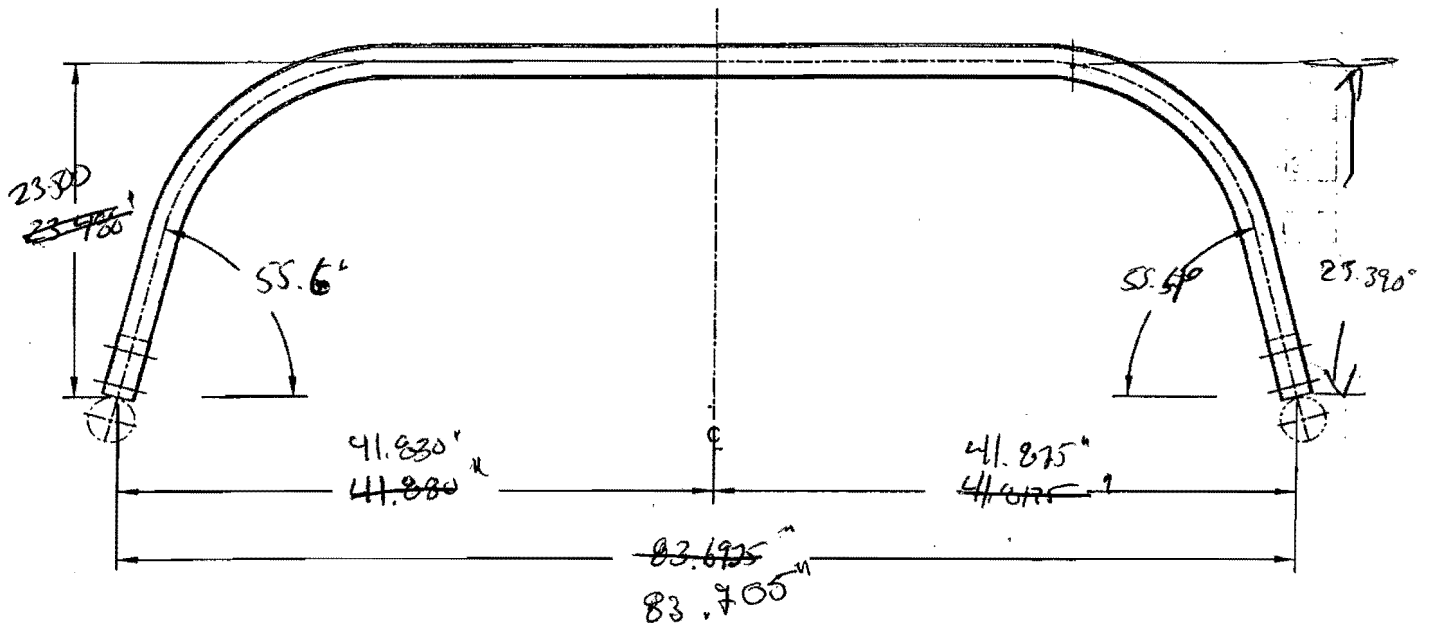
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>	67235
<b>Description:</b> Crosstube High Fwd (206L)		<b>Part Number:</b>	D206-667-103
<b>Inspection Dwg:</b> D206-667-143 <b>Rev:</b> C		<b>Page 1 of 1</b>	

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.10

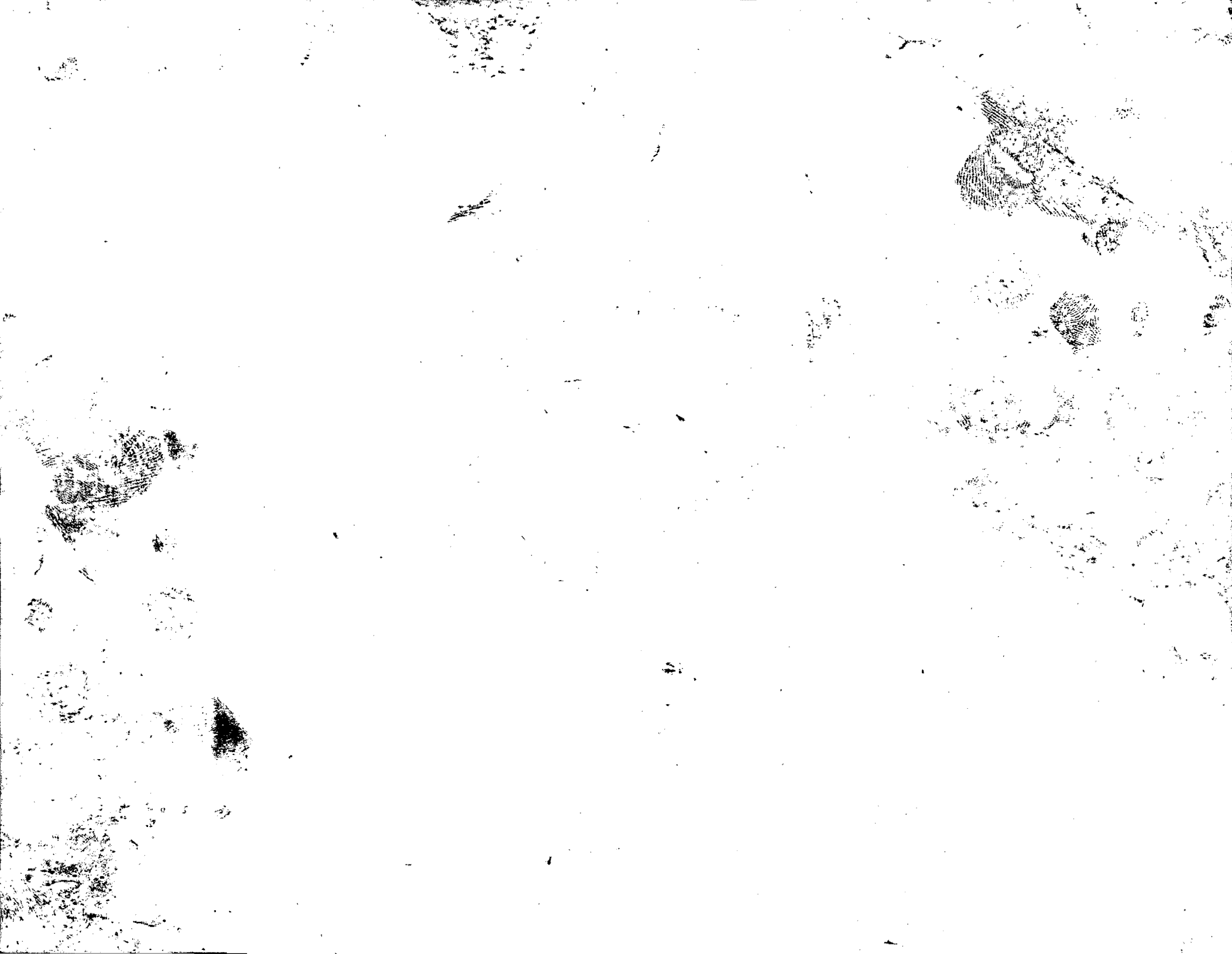


Comments

QC15 Inspection	8
Date	11/03/25

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.26	Dimensions updated per Dwg Rev C	KJ	
C	09.10.22	Minimum height dimension revised	KJ	

41.880  
41.875  
83.695



Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

CL 11/03/14  
W10: 67235

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115  
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED  
08/11/14

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN	RF		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.11.06		

<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D206-667-143	REV. C SHEET 1 OF 4
TITLE CROSSTUBE ASSY (206L HIGH FWD)	SCALE NTS
COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



8 7 6 5 4 3 2 1

D

C

B

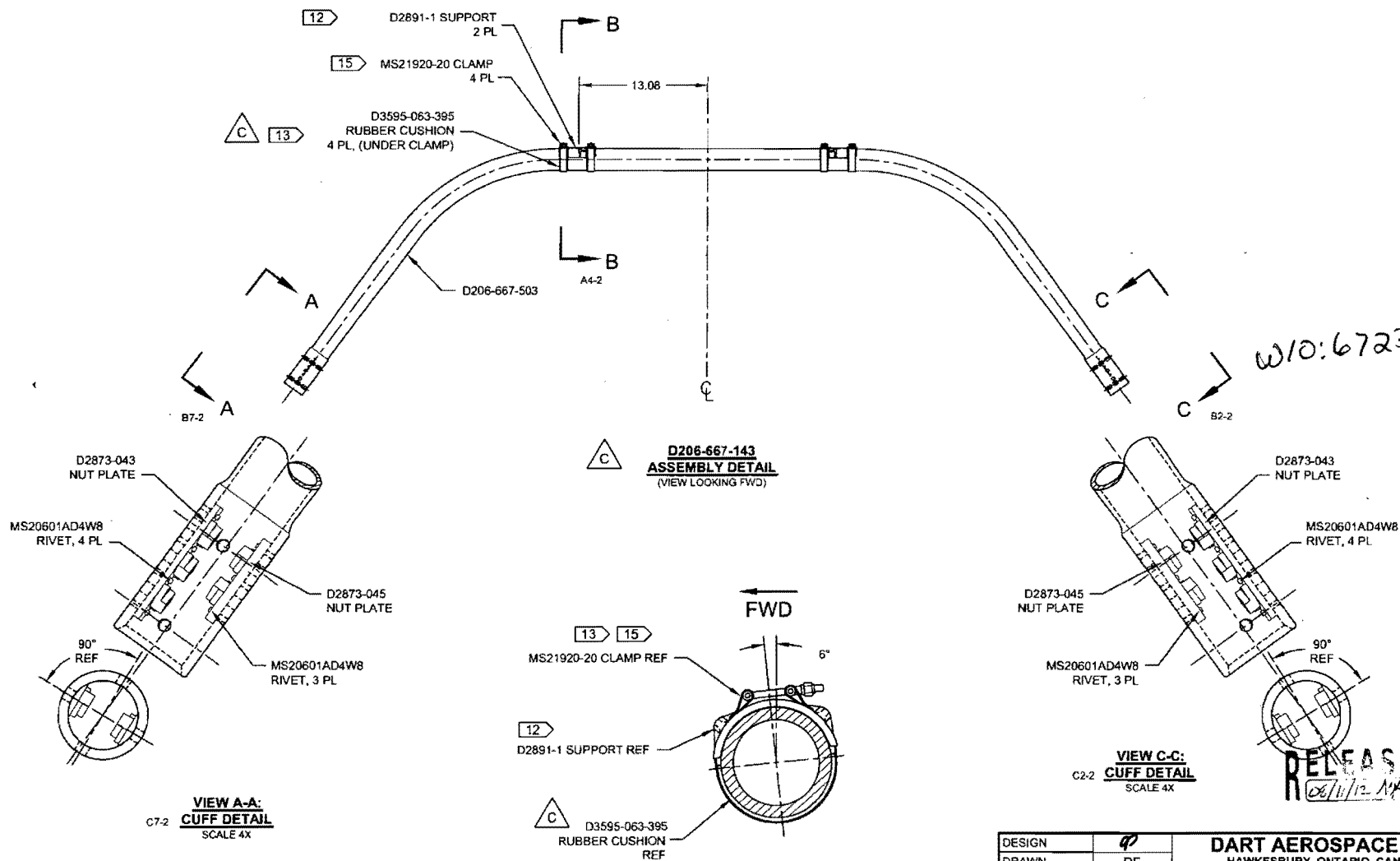
A

D

C

B

A



W10:67235

RELEASED

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. C
MFG. APPR.		D206-667-143	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DATE	08.11.06	<small>COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

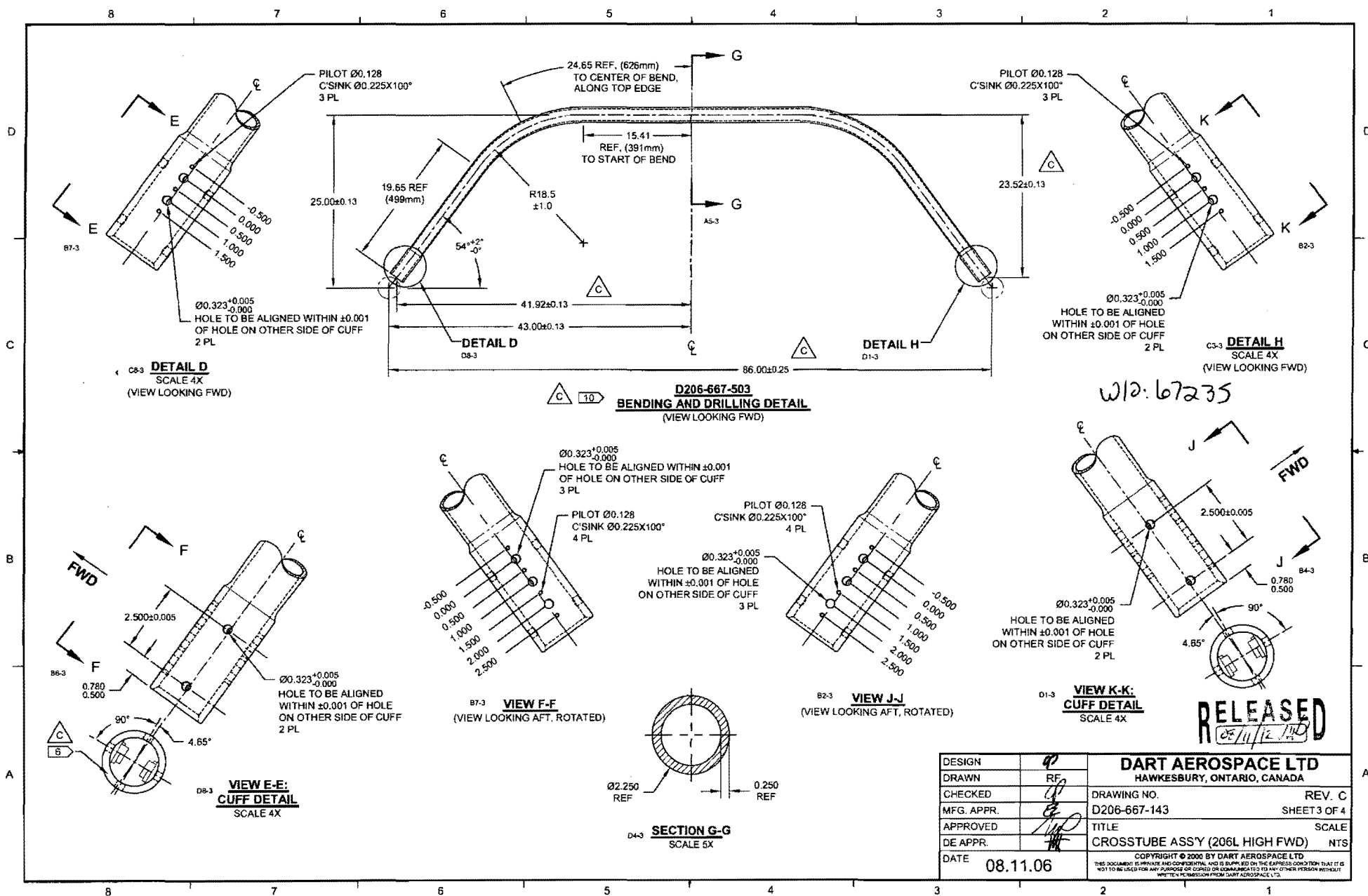
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



RELEASED  
08/11/12

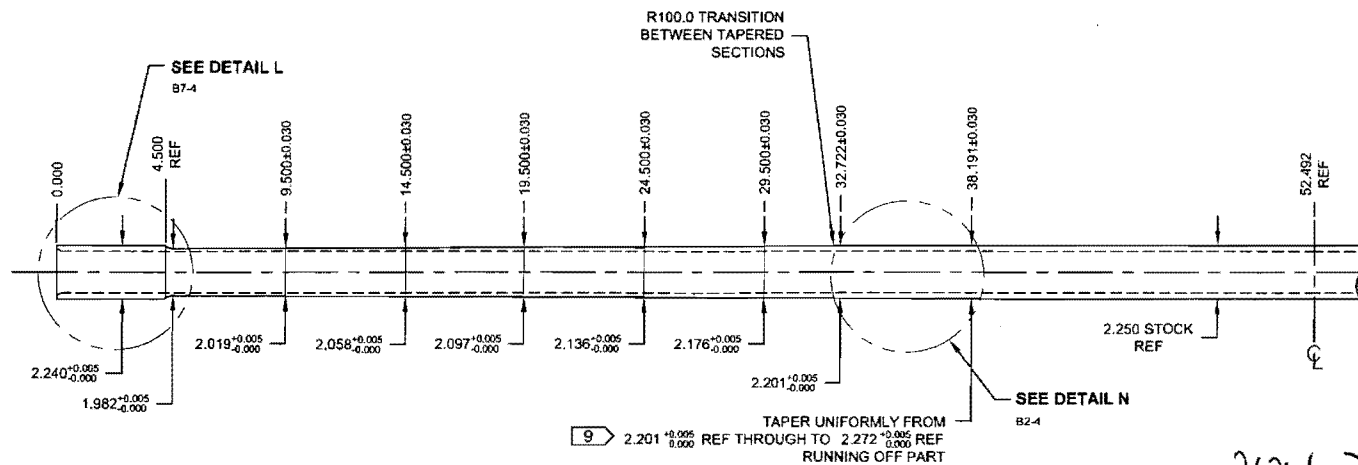
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

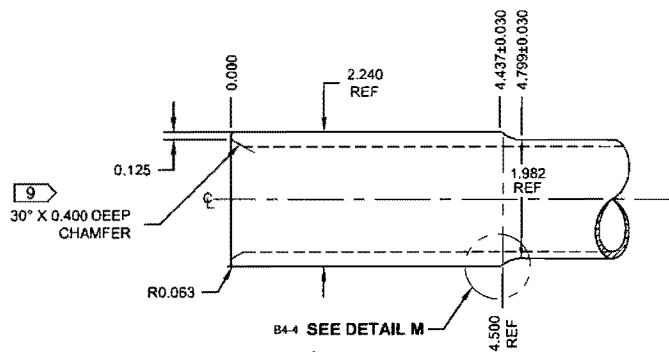
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

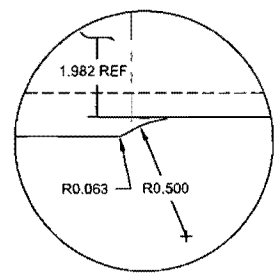


W10.67235

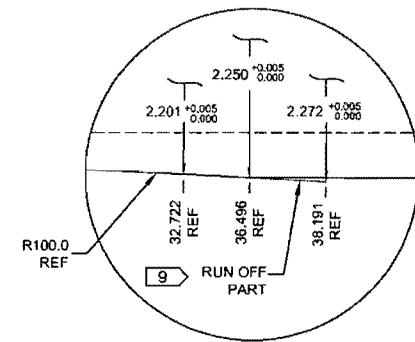
**C TURNING DETAIL**



**DETAIL L: CROSSTUBE CUFF**  
D7-4 NOT TO SCALE



**DETAIL M: CUFF TRANSITION**  
A6-4 NOT TO SCALE



**DETAIL N: TAPER RUN-OFF**  
C4-4 NOT TO SCALE

**RELEASED**

DESIGN	4	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	4	DRAWING NO.	REV. C
MFG. APPR.	4	D206-667-143	SHEET 4 OF 4
APPROVED	4	TITLE	SCALE
OE APPR.	4	CROSSTUBE ASSY (206L HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2009 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID PO13734

Purchase Order Date 3/29/2011

PO Print Date 3/29/2011

Page Number 1 of 2

Order From :

VC-ACU002

ACUREN  
2190 SPEERS ROAD  
OAKVILLE, ON L6L 2X8  
CA

Contact Name

Vendor Phone

613 931 1261

Vendor Fax

613 931 2777

Vendor Account Nbr

Buyer

Requisition Nbr

Tax Resale Nbr

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

Destination-Collect

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**FAKED**  
04/03/11

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	62181	D3691-1 STUD	3/29/2011 Yes	11.00	Yours ppd	\$7.7272	\$85.00
		Special Inst:	LIQUID PENETRANT INSPECTION AS PER QSI 038 OR LPI AS PER ASTM 1417 LEVEL 2				
2	67351	D212-664-101 CROSSTUBE	3/29/2011 Yes	1.00	Yours ppd	\$85.0000	\$85.00
		Special Inst:	AS ABOVE				
3	67352	D212-664-101 CROSSTUBE	3/29/2011 Yes	1.00	Yours ppd	\$85.0000	\$85.00
		Special Inst:	AS ABOVE				

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required when applicable

Change Nbr: 1

Change Date: 3/29/2011





## 5.0 PARTS LIST

Item	Qty -011	Qty -013	Qty -015	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X									D206-667-011	SPACER BLOCK KIT
		X								D206-667-013	NUT PLATE KIT (-101/-103/-105/-203/-205)
			X							D206-667-015	NUT PLATE KIT (-201)
				X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
					X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
						X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
							X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
								X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
									X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1				1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2					1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3						1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4							1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5								1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6									1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10				*2	*2	*2		*2		D2891-1	SUPPORT
11							*2			D2892-1	SUPPORT
12									*1	D2894-1	SUPPORT
13				*2	*2	*2		*2		D2856-400-694	ABRASION STRIP
14							*2		*2	D2856-400-773	ABRASION STRIP
15									*1	D2856-600-851	ABRASION STRIP
16				*4	*4	*4		*4		MS21920-20	CLAMP
17							*4		*4	MS21920-22	CLAMP
18									*2	MS21920-24	CLAMP
19				4	4	4		4		AN5-32A	BOLT
20							4		4	AN5-34A	BOLT
21				4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22				8	8	8	8	8	8	AN960JD516	WASHER
23									*2	D3190-1	CHAFING SHIELD
30	8									AN4-6A	BOLT
31	8									AN4-7A	BOLT
32	16									AN960JD416	WASHER
33	2									D3193-041	SPACER BLOCK ASSEMBLY
40		2		*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41		2		*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42			2		2					D2872-043	NUT PLATE
43			2		2					D2872-045	NUT PLATE
44		10		10		10				AN5-7A	BOLT
45		10	10		10		10	10	10	AN5-10A	BOLT
46		4	4	4	10	4		4		AN5-30A	BOLT
47		4					4		4	AN5-32A	BOLT
48		18	18	10	12	10	10	10	10	AN960JD516	WASHER
49		4	4		6					MS21042L5	NUT (OR MS21042-5)

\*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/241/143/243, &amp; D407-667-145/245 ASSEMBLIES ABOVE

• COPYRIGHT © 2001 BY DART AEROSPACE LTD. •

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Revision: C

Date: 05.07.26



REFERENCE ONLY

## DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. C  
AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 2

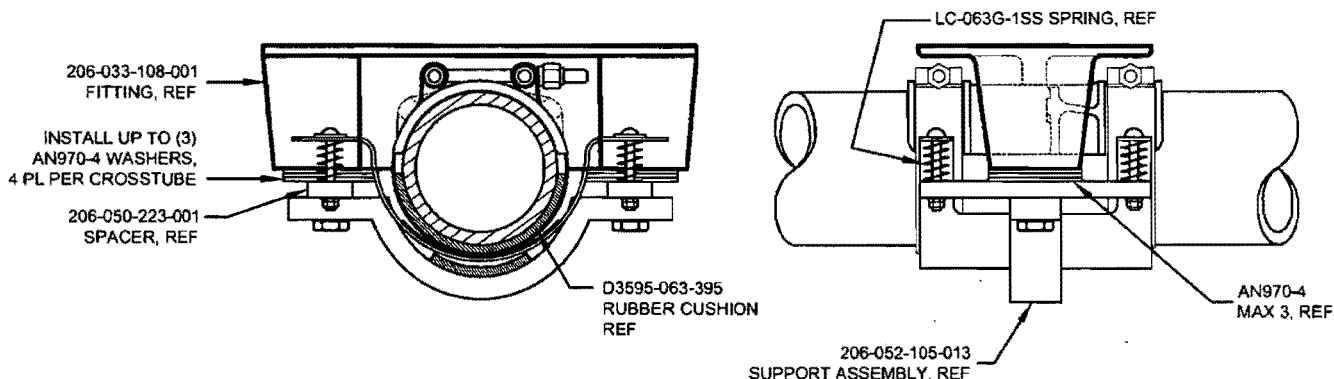
REF CANADIAN STC: SH01-5  
REF FAA STC: SR01304NY  
REF EASA STC: EASA.IM.R.S.01179

### PROBLEM:

FOR D206-667-103 CROSSTUBES (206L FWD) AT CHG 003 AND SUBSEQUENT (SEE DSI 9415) PROPER INSTALLATION OF THE OEM SUPPORT ASSEMBLIES MAY BE IMPOSSIBLE DUE TO THE ADDITIONAL THICKNESS OF THE DART D3595-063-395 RUBBER CUSHIONS. THE 206-052-105-013 SUPPORT ASSEMBLY (OR EQUIVALENT) MAY SIT TOO HIGH RELATIVE TO THE 206-033-108-001 FITTING, CAUSING THE LC-063G-1SS SPRING (OR EQUIVALENT) TO BE OVERLY COMPRESSED.

### SOLUTION:

IT IS ACCEPTABLE TO LOWER THE SUPPORT ASSEMBLY BY INSTALLING UP TO QTY (3) AN970-4 WASHERS BETWEEN THE 206-033-108-001 FITTING (OR EQUIVALENT) AND THE 206-050-223-001 SPACER (OR EQUIVALENT). SEE FIGURE BELOW FOR REFERENCE.



### CROSSTUBE SECTION: SUPPORT DETAIL

### PARTS LIST:

THE FOLLOWING PARTS HAVE BEEN INCLUDED WITH D206-667-103 CROSSTUBES AT CHG 004 AND SUBSEQUENT

ITEM	Qty	PART NUMBER	DESCRIPTION
60	12	AN970-4	WASHER

CANADA  
DEPARTMENT OF TRANSPORT  
AIRCRAFT CERTIFICATION  
BRANCH  
DAO # 01-O-01

APPROVED  
BY: *[Signature]*  
D. SHEPHERD (DE # 02)

DATE: 08.12.17  
CERT. NO.: SH01-5  
ISSUE NO.: 3

A	NEW ISSUE	CP	08.12.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>qp</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>qp</i>		
CHECKED	<i>PH</i>	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9439	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	206L FWD XTUBE SUPPORT MOD.	NTS
DATE	08.12.17	COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	





# LIQUID PENETRANT TEST REPORT

P- 12233

CLIENT	DART Aerospace	DATE	March 29-2011	PAGE	1	OF	2
ATTENTION	LINDA LACELLE	ACUREN JOB NO.	188-11-02066	TIME	AM	<input checked="" type="checkbox"/>	PM
ADDRESS	1270 ABERDEEN ST. HAWKESBURY, ON. K6A 1K7	PO/NO No.	13734	WORK LOCATION	HAWKESBURY		
PROJECT	F.P.I. ON	ACCEPTANCE STD.	ASTM 147/BSI-038	REV./DATE	2005		
ITEM(S) EXAMINED	(7) CROSS TUBE 3						

JOB DESCRIPTION	PROCEDURE NO.	LT 1002	REV./DATE	2008	TECHNIQUE NO.	LT 1002	REV./DATE	2008
PART NO.	—			MATERIAL	ALUMINE ALUMINUM THICKNESS			VARIOUS
SCOPE	WET FLUORESCENT LIQUID PENETRANT INSPECTION. CARRIED OUT ON 100% EXTERNAL SURFACE.							

TEST DETAILS						
METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED	
FAMILY BRAND	MAGNAFLUX		BLACK LIGHT S/N	16459	<input checked="" type="checkbox"/> OUTPUT > 1000 $\mu$ W/cm <sup>2</sup>	<input type="checkbox"/> AMBIENT < 2 fc
PENETRANT	2007	MINIMUM DWELL TIME	45	MIN.	LIGHTING EQUIP.	<input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER	H2O	MINIMUM DRY TIME	> 10	MIN.	OTHER	LABINO
DEVELOPER	SK052	MINIMUM DWELL TIME	10	MIN.	LIGHT METER S/N	1098866
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY	CAL DUE DATE	OCT-19-2011	

TEST SURFACE					
SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/ 20°F	<input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F	<input type="checkbox"/> 10°C/50°F TO 52°C/125°F	<input type="checkbox"/> > 52°C/125°F	

RESULTS- ( <input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL)			
1	CrossTUBE:W.O. 67235	✓	INDICATIONS TO BE REMOVED
1	CrossTUBE:W.O. 672351	✓	
1	CrossTUBE:W.O. 672352	✓	
1	CrossTUBE:W.O. 67238	✓	
1	CrossTUBE:W.O. 67237	✓	
1	CrossTUBE:W.O. 67236	✓	INDICATIONS TO BE REMOVED
1	CrossTUBE:W.O. 67433	✓	INDICATIONS TO BE REMOVED

**Scope of Services**  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

**Standard of Care**  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES			
CLIENT REPRESENTATIVE	Bar Titley	Signature	DTR # E-63781
TECHNICIAN (SIGNATURE):	Mike Jettis	Signature	REPORT REVIEWED BY:
NAME (PRINT):	Mike Jettis	NAME	INITIALS
CGSB LEVEL	1 <sup>ST</sup> TECHNICIAN	CGSB LEVEL	2 <sup>ND</sup> TECHNICIAN
CGSB REG. NO.	6606	CGSB REG. NO.	





## LIQUID PENETRANT TEST REPORT

P- 12234

PAGE 1 OF 1

CLIENT	DMT AeroSpace	DATE	March 30-2011	TIME	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>
ATTENTION	LINDA LACELLE	ACUREN JOB NO.	188-11-02067		
ADDRESS	1270 ABERDEEN ST. HAWKES BURY, ON. K6A 1K7	PO/WO NO.	PO 188-11-02067-13734		
PROJECT	F.P.I. on cross tubes & sleeves	WORK LOCATION	HAWKES BURY		
ITEM(S) EXAMINED		ACCEPTANCE STD.	ASTM 1417/051-038	REV./DATE	2005
			(6)		(8)

JOB DESCRIPTION	PROCEDURE NO. LTech 2	REV./DATE	2008	TECHNIQUE NO. LTech 2	REV./DATE	2008
PART NO.		MATERIAL	Aluminum	THICKNESS	VARIOUS.	
SCOPE	WET FLUORESCENT LIQUID PENETRANT INSPECTION CARRIED OUT ON 100% EXTERNAL SURFACE.					

TEST DETAILS	
METHOD <input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND MAGNA FLUX	BLACK LIGHT S/N 16459 OUTPUT > 1000 $\mu$ W/cm <sup>2</sup> <input type="checkbox"/> AMBIENT < 2 fc
PENETRANT ZL67 MINIMUM DWELL TIME 45 MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME > 10 MIN.	OTHER LABINO
DEVELOPER SKD 12 MINIMUM DWELL TIME 10 MIN.	LIGHT METER S/N 1098866 CAL DUE DATE 06/7/19
DEVELOPER TYPE <input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY	2011

TEST SURFACE	
SURFACE CONDITION <input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED <input type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input checked="" type="checkbox"/> CLEAN BARE METAL	
SURFACE TEMPERATURE <input type="checkbox"/> < -4°C/ 20°F <input type="checkbox"/> -4°C/ 20°F TO 10°C/ 50°F <input checked="" type="checkbox"/> 10°C/ 50°F TO 52°C/ 125°F <input type="checkbox"/> > 52°C/ 125°F	

RESULTS- <input type="checkbox"/> METRIC <input checked="" type="checkbox"/> IMPERIAL	
1 CROSS TUBE W.O. 67235 ✓	PREVIOUS INDICATIONS FROM March 30-2011 - Report # P12233 ON THESE CROSSTUBES HAVE BEEN REMOVED
1 CROSS TUBE W.O. 67236 ✓	
1 CROSS TUBE W.O. 67433 ✓	
8 SLEEVE W.O. 65346 ✓	
1 CROSS TUBE W.O. 67438 ✓	
1 CROSS TUBE W.O. 67437 ✓	
1 CROSS TUBE W.O. 67434 ✓	11.04.04

**Scope of Services**  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

**Standard of Care**  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES	
CLIENT REPRESENTATIVE	PRINT SIGNATURE
TECHNICIAN (SIGNATURE):	REPORT REVIEWED BY:
NAME (PRINT):	NAME INITIALS
CGSB LEVEL <input checked="" type="checkbox"/> SNT LEVEL	CGSB LEVEL SNT LEVEL
CGSB REG. NO. 6606	CGSB REG. NO.

